

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
31 July 2003 (31.07.2003)

PCT

(10) International Publication Number
WO 03/062906 A1

(51) International Patent Classification⁷: **G02C 11/06**

(21) International Application Number: **PCT/EP03/00368**

(22) International Filing Date: 15 January 2003 (15.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PD2002U000007 24 January 2002 (24.01.2002) IT

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SI, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

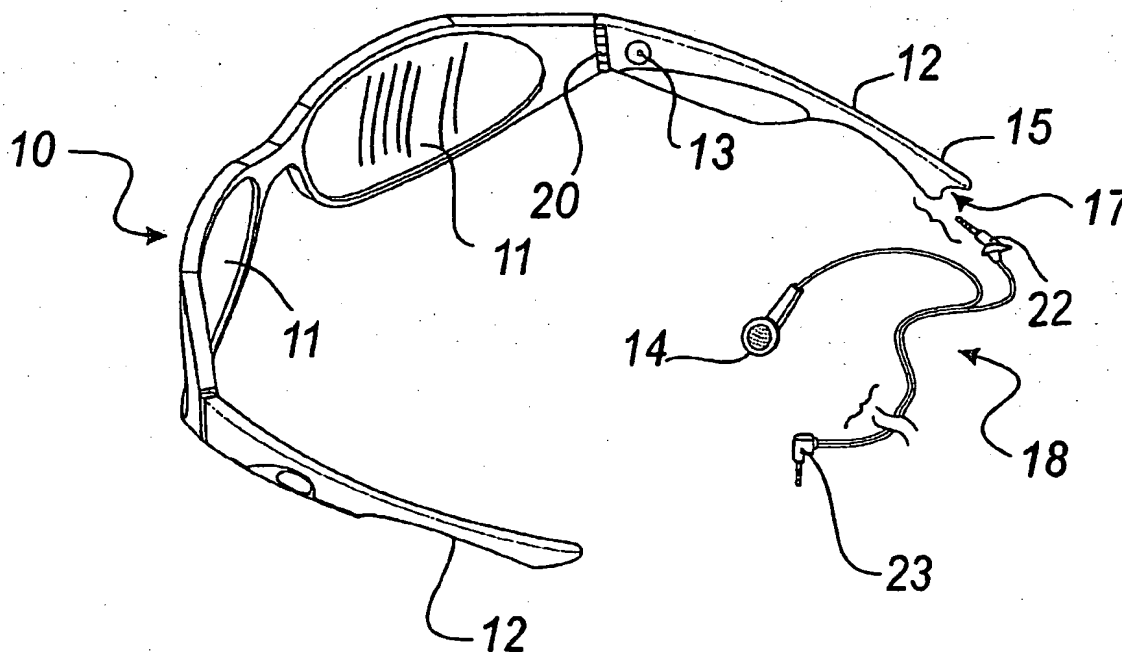
(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

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(54) Title: **EYEGLASSES PRESET FOR CONNECTION TO CELLULAR TELEPHONES FOR TRANSMITTING AND RECEIVING CALLS**



(57) Abstract: Eyeglasses comprising a microphone (13) in the front part, electronic noise-reduction components (27, 28), connection cables (16) located inside the structure, and a connector (17) for a cable (18) for connection to a cellular telephone.

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EYEGLASSES PRESET FOR CONNECTION TO CELLULAR TELEPHONES FOR TRANSMITTING AND RECEIVING CALLS

Technical Field

The present invention relates to a pair of eyeglasses preset for connection
5 to cellular telephones for transmitting and receiving calls.

Background Art

Over the last few decades, as telephony has developed, telephone
connections have become increasingly frequent; however, while fixed
telephones require interrupting any activity in order to make and/or receive
10 calls, the arrival of the cellular telephone has given a new meaning to the
concept of telephony, allowing telephone connections even in particular
situations that are not strictly linked to the work or private environment and
without the need to have a telephone connected to the telephone line by
means of wires and placed in a specific room.

15 It is in fact possible to communicate substantially in any enclosed or open
location covered by the telephone network and without necessarily having to
interrupt activity or work.

However, the use of a cellular telephone, which entails the use of one's
hands to hold and handle the device, reply and/or dial the number, as well as
20 the use of one's sight to perform certain functions, distracts the user's
attention and concentration from the activity he is performing, such as for
example driving a vehicle, maneuvering a machine, performing sports
activities, et cetera, possibly producing dangerous situations.

Disclosure of the Invention

25 The aim of the present invention is to provide eyeglasses which, in
addition to the normal optical and/or sunlight-barrier function, are capable of
constituting a means for transmitting and receiving cellular telephone calls,
so that the user can receive and make calls without taking his attention off
the activity he is performing.

30 Within this aim, a consequent object of the invention is to provide

eyeglasses that reduce the risk of emission of electromagnetic waves, which are believed to be dangerous for human organs such as the brain.

Another object is to provide eyeglasses that can be worn as easily and comfortably as conventional eyeglasses.

5 A further object is to provide eyeglasses that can be used with any kind of cellular telephone.

Another object is to provide eyeglasses in which the devices for transmitting and receiving cellular telephone calls are integrated so as to not alter their ergonomic features.

10 A still further object is to provide eyeglasses whose structure allows industrial-scale production at competitive costs.

This aim and these and other objects that will become better apparent hereinafter are achieved by eyeglasses, characterized in that they comprise a microphone in a front part thereof, electronic noise-reduction components,
15 connection cables located inside the structure, and a connector for a cable for connection to a cellular telephone.

Brief description of the Drawings

Further characteristics and advantages of the invention will become better apparent from the following detailed description of an embodiment thereof,
20 illustrated by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a rear perspective view of eyeglasses according to the invention;

25 Figure 2 is an enlarged-scale perspective view of a detail of the eyeglasses of Figure 1;

Figure 3 is a perspective view of the eyeglasses of Figure 1 with a corresponding telephone;

Figure 4 is a circuit diagram of the components located inside the frame of the eyeglasses;

30 Figure 5 is a detail view of a universal three-contact connector for a

connecting cable that is used;

Figure 6 is a detail view of a four-contact connector for a connecting cable that is used.

Ways of carrying out the Invention

5 With reference to the figures, a pair of eyeglasses according to the invention is, as usual, constituted by a front 10, which supports lenses 11 (of the sight-correcting type or of the sunlight-barrier type), to the ends of which temples 12 are articulated.

10 According to the invention, the eyeglasses comprise a microphone 13, preferably an ultraflat high-sensitivity one, which is located in the inner front part that is not in sight, for example of one of the temples 12. Electronic noise-reduction components, described hereinafter in greater detail, are also located inside the frame, as well as connecting cables 16. A connector 17 for a cable 18 for connection to a cellular telephone 19 is also provided.

15 The microphone 13 can also be integrated in the front 10, in which case electrical contacts for continuity must be provided at a corresponding hinge 20.

As regards the connector 17, it is of the female type and is embedded in a terminal 15, and can be of the commonly commercially available type that is 20 complementary to a male connector 22 normally used in cellular telephone connections and located at the end of the connecting cable 18.

The connecting cable also comprises a branch, at the end of which an in-ear headset 14 is arranged.

25 The other end of the cable 18 is provided with another male connector 23, which can be inserted in a corresponding female connector 24 of the telephone 19.

The connector 23 can be either of the universal three-contact type (Figure 5), or of the four-contact type (Figure 6, designated by the reference numeral 23a).

30 The connector 17 is conveniently of the three-contact type in order to

interface with all telephone connection kits.

The connecting cables 16 (preferably of the shielded coaxial type in order to eliminate any interference) are embedded in the plastics material in the case of eyeglasses with a frame made of plastics, or are located inside
5 hollow regions of the structure in the case of eyeglasses having a metal structure.

As regards the electronic noise reduction components, with particular reference to the previously cited Figure 4, an SMD passive noise reduction component is arranged in parallel to the microphone 13; such component is
10 constituted by a capacitor 27 with a resistor 28 in series, also of the SMD type, in order to eliminate all transmission noise caused by electrostatic discharges.

A button 29 is further integrated in the temple 12, adjacent to the microphone 13, and is connected in parallel to the microphone 13 and in
15 series to an interface resistor 30, which allows to recognize the clearance signal given by the button 29.

The button 29, which avoids the need to pull out the telephone whenever it is used, has at least one of the following functions:

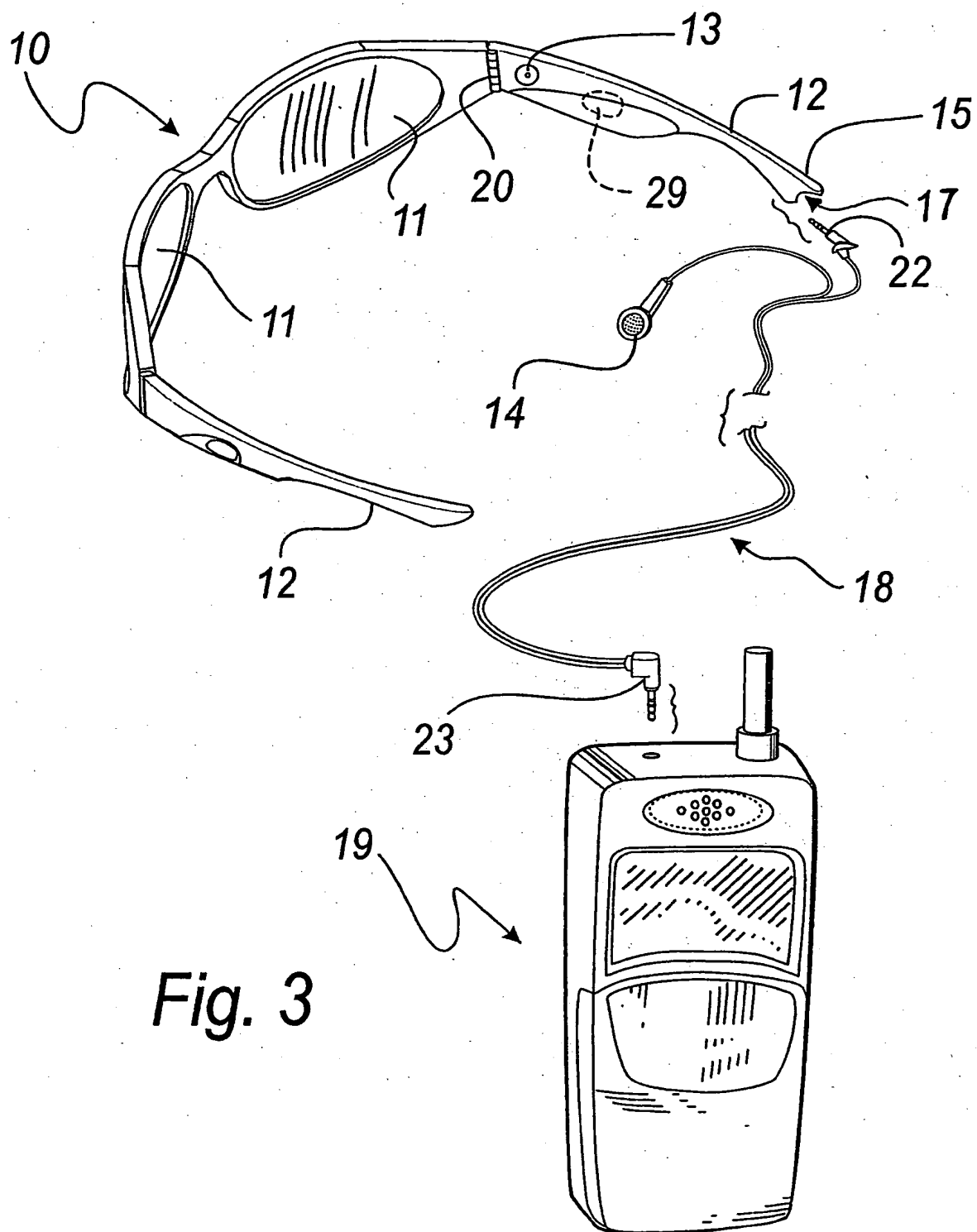
- manual answer (call acceptance);
- 20 -- end of call;
- voice call start.

In a board 31 on which the electronic components are located, the surface arranged opposite the components is shielded with conducting material in order to avoid external noise.

25 In practice it has been found that the intended aim and objects of the present invention have been achieved.

The eyeglasses in fact appear to be entirely similar to normal corrective eyeglasses or sunglasses and can be used normally for this purpose, with the additional possibility, for example when driving, motorcycling, cycling or in
30 other situations, to connect the microphone, by means of a cable, to a

2/3

*Fig. 3*

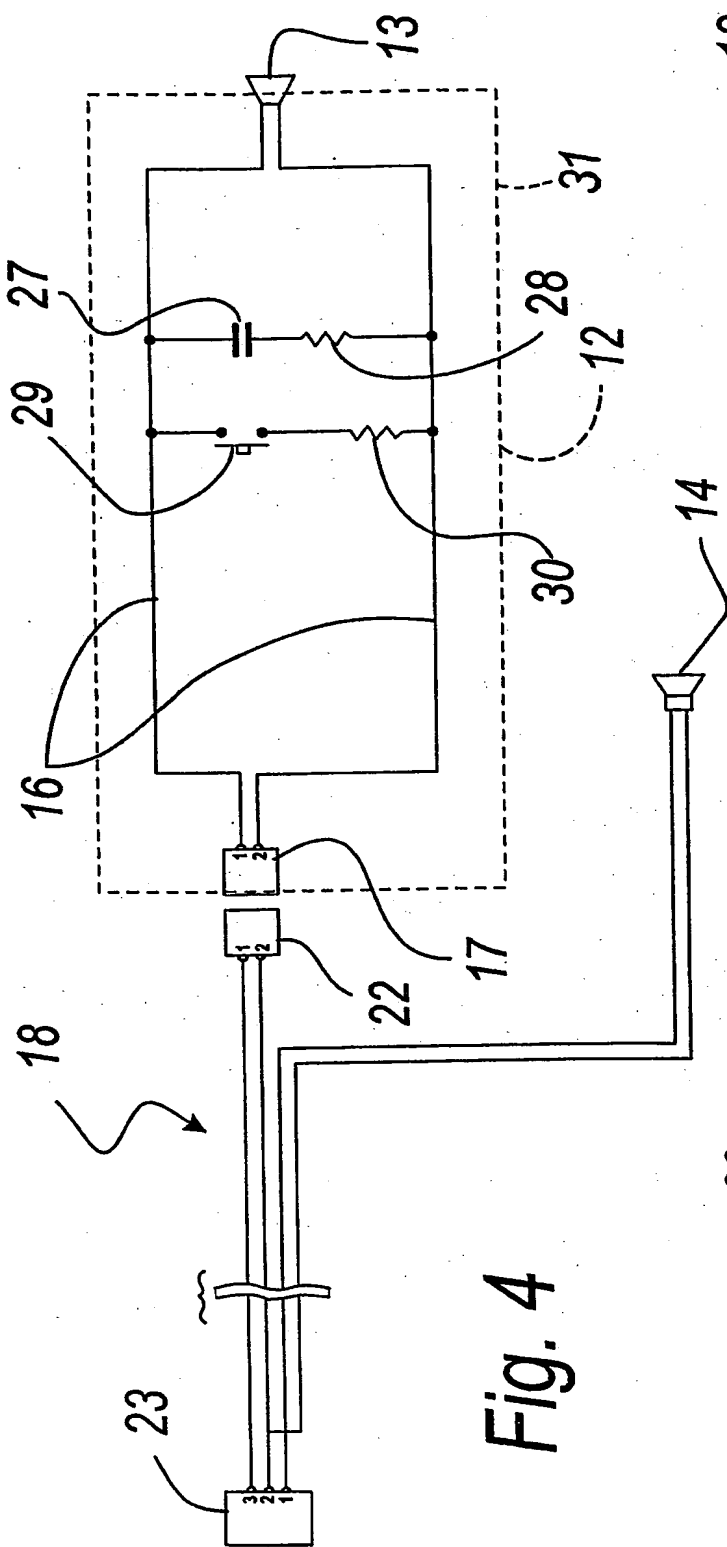


Fig. 4

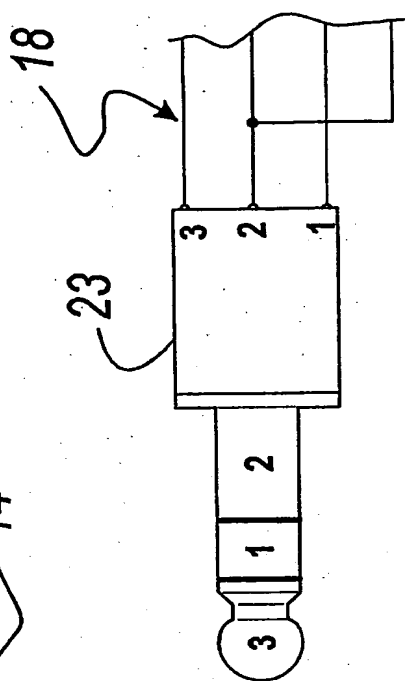


Fig. 5

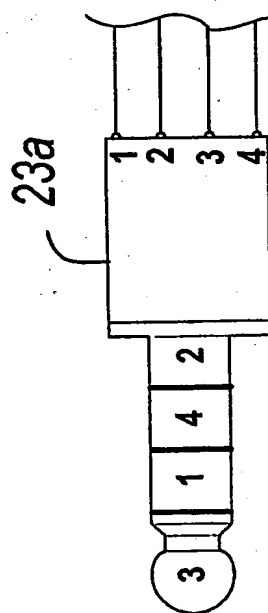


Fig. 6

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/00368

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 602C11/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 602C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y	WO 02 086599 A (DA PRA SILVIO ;FOVS SRL (IT)) 31 October 2002 (2002-10-31) claims	1-7,14
Y	WO 99 23524 A (MICROOPTICAL CORP) 14 May 1999 (1999-05-14) page 13, line 23 -page 19, line 19	1-7
Y	DE 199 59 493 A (BUNZEL WOLF ;JAEHNERT JAN (DE)) 25 May 2000 (2000-05-25) column 2, line 35 - line 62	1,3,14
A	WO 90 10361 A (ULLMAN JOHAN) 7 September 1990 (1990-09-07) page 3, line 35 -page 11, line 17 -/-	1-14

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Date of the actual completion of the international search

9 April 2003

Date of mailing of the international search report

16/04/2003

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/00368

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 176 576 B1 (BRIGHT AARON L ET AL) 23 January 2001 (2001-01-23) column 16, line 61 -column 18, line 2 ----	1-14
A	EP 0 840 465 A (NOKIA MOBILE PHONES LTD) 6 May 1998 (1998-05-06) column 15, line 47 -column 16, line 32 -----	1-14

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 03/00368

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 02086599	A	31-10-2002	WO 02086599 A1	31-10-2002
WO 9923524	A	14-05-1999	CA 2307869 A1	14-05-1999
			CA 2307877 A1	14-05-1999
			EP 1027626 A1	16-08-2000
			EP 1027627 A1	16-08-2000
			JP 2001522063 T	13-11-2001
			JP 2001522064 T	13-11-2001
			WO 9923524 A1	14-05-1999
			WO 9923525 A1	14-05-1999
			US 6023372 A	08-02-2000
			US 6091546 A	18-07-2000
			US 6204974 B1	20-03-2001
			US 6349001 B1	19-02-2002
			US 6356392 B1	12-03-2002
			US 6384982 B1	07-05-2002
DE 19959493	A	25-05-2000	DE 19959493 A1	25-05-2000
WO 9010361	A	07-09-1990	SE 463064 B	01-10-1990
			WO 9010361 A1	07-09-1990
US 6176576	B1	23-01-2001	US 5781272 A	14-07-1998
			AU 4973399 A	01-02-2000
			BR 9902714 A	18-01-2000
			CA 2275057 C	01-05-2001
			DE 19933280 A1	17-02-2000
			FR 2780876 A1	14-01-2000
			GB 2343263 A ,B	03-05-2000
			GB 2336692 A ,B	27-10-1999
			WO 0003287 A1	20-01-2000
			AU 742354 B2	03-01-2002
			AU 7282098 A	21-12-1998
			BR 9812264 A	18-07-2000
			CA 2289874 C	01-05-2001
			EP 0990190 A1	05-04-2000
			NO 995612 A	15-12-1999
			WO 9855894 A1	10-12-1998
EP 0840465	A	06-05-1998	FI 964399 A	15-06-1998
			EP 0840465 A2	06-05-1998
			JP 10163917 A	19-06-1998
			US 2001031622 A1	18-10-2001
			US 6272359 B1	07-08-2001